

REMARKS

Claims 1-25 are pending in this application. Claims 1-17 and 21-25 are rejected. Claims 18-20 are objected to. No new matter has been added. It is respectfully submitted that the pending claims define allowable subject matter.

As an initial matter, Applicants have amended paragraph 0049 of the specification to provide consistency in the description of the figures.

Additionally, Applicants acknowledge with appreciation that claims 18-20 would be allowable if rewritten in independent form. However, as discussed herein, Applicants submit that independent Claim 9 from which these claims depend, and as amended, is allowable.

Claims 1-14, 16, and 21-25 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Hanawa (U.S. Patent 4,767,993). Applicants respectfully traverse this rejection.

Hanawa describes a coil system for magnetic resonance imaging including a first coil for transmitting a predetermined high-frequency pulse and second and third coils arranged on a propagation path of the magnetic resonance signal at a position closer to the object to be examined than the first coil in directions orthogonal to each other, and for receiving the magnetic resonance signals (Abstract). In one embodiment, the coil system includes a pair of first coils 11a and 11b for transmitting an excitation pulse, and pairs of second and third coils 12a and 12b and 13a and 13b for receiving an MR signal (column 3, lines 23-26). First coils 11a and 11b are a pair of saddle coils opposing each other across an imaging area where an object to be examined is arranged. Second and third coils 12a and 12b, and 13a and 13b are arranged on a propagation path of an MR signal generated from the object at positions closer to a resonance portion than first coils 11a and 11b (column 3, lines 27-33). Similar to first coils 11a and 11b, second and third coils 12a, 12b and 13a and 13b are respectively pairs of saddle coils opposing each other across an imaging area where the object is arranged. Second and third coils 12a and 12b, and 13a and 13b are arranged in directions orthogonal to each

other. Second and third coils 12a and 12b, and 13a and 13b are arranged to be offset from first coils 11a and 11b by 45° ($+45^\circ$ and -45° , respectively) (column 3, lines 34-42).

In another embodiment, a first pair of receiving coils are constituted by elliptic coils 31a and 31b orthogonal to each other, and a second pair of receiving coils are constituted by elliptic coils 32a and 32b orthogonal to each other. The first and second pairs of coils 31a and 31b and 32a and 32b are provided in directions orthogonal to each other (column 5, lines 10-16).

Claim 1, as amended, recites a coil for medical imaging comprising “a first section; and a second section, the first and second sections forming a loop and configured in a diagonal arrangement across an imaging axis.” Hanawa fails to describe or suggest such a coil for medical imaging.

In contrast to claim 1, Hanawa requires a pair of separate coils, disclosed as a pair of saddle coils, opposing each other across an imaging area. Thus, Hanawa requires two separate coils in opposed relation across an imaging area. In contrast, claim 1 recites a coil, not separate coils, having a first section and a second section forming a loop and configured in a diagonal arrangement across an imaging axis. Nowhere in Hanawa is such a coil with first and second sections disclosed or shown. Accordingly, for at least the reasons set forth above, Applicants submit that claim 1 is patentable over Hanawa.

Claims 2-8 depend from independent claim 1. When the recitations of these claims are considered in combination with the recitations of claim 1, Applicants submit that these dependent claims are likewise patentable over Hanawa for at least the same reasons set forth above.

Additionally, claim 1 has been amended to more particularly recite the diagonal coil arrangement.

Claim 9, as amended, recites a system for medical imaging comprising a first coil and second coil configured in a diagonal arrangement and “wherein each of the first and second

coils include a middle section with the middle section of each of the first and second coils overlapping.” Hanawa fails to describe or suggest such a system as recited in this claim.

Unlike Hanawa, wherein adjacent coils are overlapped at a region of the edges of the coils, as is known, claim 9, as amended, recites the middle section of each of the first and second coils overlapping. Hanawa fails to describe or suggest such a coil arrangement and would fail to properly operate in such a configuration. Accordingly, for at least the reasons set forth above, Applicants submit that claim 9, as amended, is patentable over Hanawa.

Claims 10-14, 16, and 21-24 depend from independent claim 9. When the recitations of these claims are considered in combination with the recitations of claim 9, Applicants submit that these dependent claims are likewise patentable over Hanawa for at least the same reasons set forth above.

Claim 25, as amended, recites a method for medical imaging comprising “providing a middle section of each of the first and second coils in an overlapping arrangement.” Hanawa fails to describe or suggest such a method for medical imaging. As discussed above with respect to independent claim 9, Hanawa only provides overlapping at a region of the edges of the coils and would fail to properly operate otherwise. Accordingly, for at least the reasons set forth above, Applicants submit that claim 25 is patentable over Hanawa.

Thus, for at least the reasons set forth above, Applicants respectfully request that the 35 U.S.C. § 102(b) rejection be withdrawn.

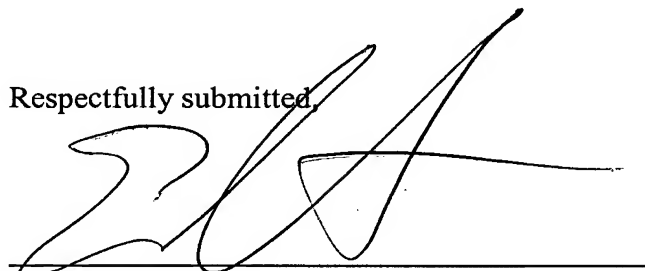
Claim 15 and 17 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Hanawa as applied to claim 9 and further in view of Molyneaux et al. (U.S. Patent 6,836,118).

Applicants submit that even from a cursory review of Molyneaux et al., this reference fails to make up for the deficiencies of the Hanawa reference. Accordingly, and based upon the dependency of claims 15 and 17 from claim 9, and when the recitations of these claims are considered in combination with the recitations of claim 9, Applicants submit that dependent claims 15 and 17 are likewise patentable over Hanawa in view of Molyneaux et al.

Thus, for at least the reasons set forth above, Applicants respectfully request that the 35 U.S.C. § 103(a) rejection be withdrawn.

In view of the foregoing amendments and remarks, it is respectfully submitted that the prior art fails to teach or suggest the claimed invention and all of the pending claims in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited. Should anything remain in order to place the present application in condition for allowance, the Examiner is kindly invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Evan Reno Sotiriou', is written over a horizontal line.

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